

REMARKS

Claims 1-16 and 18-34 are now pending in the application. The Examiner is respectfully requested to reconsider and withdraw the rejection) in view of the amendments and remarks contained herein.

REJECTION UNDER 35 U.S.C. § 102

Claims 1-6, 8-11, 13-14, 17 and 29-34 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Tavender (U.S. Pat. No. 2,878,360). This rejection is respectfully traversed.

A review of the Tavender heating device reveals that fluid is heated along the entire length of a passage way defined by the outer tube (11a) and the inner tube (11b), and along the entire length of the heater element (11d and 11c) that extends above and out of the upper end fittings (16) to provide a terminal for electrical connection. However, the heater element provides continuous heating along its entire length, including the portions that extend beyond the nozzles and above the fittings (16). (column 4, lines 38-42, 45-48, "Superheating of steam may thus be continued in said helical channel as it passes points close to the outlet"). Thus, the extending of the heating elements (11c and 11d) beyond the nozzles and outside of the fluid passage generates heat that is beyond the fluid flow and beyond the fittings (16). As such, the Tavender heating device generates excess heat that is both inefficient and undesired.

Claims 1, 29 and 34 as amended require a fluid heat exchanger having a conductive "cold portion" 32 connected to opposing ends of the hot portion 34, such that electrical power may be connected to the cold portions 32 which causes hot portion 34

to generate heat. Thus, the hot portion 34 generates heat within the flow passage, and the cold portions 32 extending beyond the outside and inside tubes do not generate heat. These cold portions provide a more efficient and desirable fluid heat exchanger, which applicants submit is not anticipated by Tavender. These claims further require the outside tube (42) to surround both the hot portion (34) and the cold portions (32), unlike the device in Tavender where the heating element and inner tube (11b, 11c, 11d) extend beyond the outer tube (11a). For at least these reasons, the Examiner is respectfully requested to withdraw the rejection of independent claims 1, 29, and 34. Furthermore, Applicants respectfully request that dependent claims 2-6, 8-11, 13-14 and 30-33 be allowed by virtue of their respective dependencies to the above amended independent claims.

REJECTION UNDER 35 U.S.C. § 103

Claim 7 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Tavender (U.S. Pat. No. 2,878,360) in view of Chen et al. (U.S. Pat. No. 6,068,703). This rejection is respectfully traversed.

As noted above, independent claim 1 which claim 7 depends therefrom has been amended to overcome the reference cited in the Office Action. For at least these reasons, dependent claim 7 should be allowable by virtue of its dependency to independent claim 1, which Applicants believe to be allowable in view of the above remarks.

Claims 12, 15, 16 and 18 stand rejected under 35 U.S.C. § 103(a) as being obvious in view of Tavender (U.S. Pat. No. 2,878,360). This rejection is respectfully traversed.

As noted above, independent claim 1 which claims 12, 15, 16, and 18 ultimately depend therefrom has been amended to overcome the reference cited in the Office Action. For at least these reasons, dependent claim 7 should be allowable by virtue of its dependency to independent claim 1, which Applicants believe to be allowable in view of the above remarks.

Claims 19-27 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Tavender (U.S. Pat. No. 2,878,360) in view of Grant (U.S. Pat. No. 6,516,142). This rejection is respectfully traversed.

Claim 19 as amended requires a fluid heat exchanger having a conductive "cold portion" 32 connected to opposing ends of the hot portion 34, such that electrical power may be connected to the cold portions 32 which causes hot portion 34 to generate heat. Thus, the hot portion 34 generates heat within the flow passage, and the cold portions 32 extending beyond the outside and inside tubes do not generate heat. These cold portions provide a more efficient and desirable fluid heat exchanger, which applicants submit is not anticipated by Tavender. This claim further require the outside tube (42) to surround both the hot portion (34) and the cold portions (32), unlike the device in Tavender where the heating element and inner tube (11b, 11c, 11d) extend beyond the outer tube (11a). For at least these reasons, the Examiner is respectfully requested to withdraw the rejection of independent claim 19. Furthermore, Applicants respectfully request that dependent claims 20-27 be allowed by virtue of their respective dependencies to independent claim 19.

Claim 28 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Tavender (U.S. Pat. No. 2,878,360) in view of Chen et al. (U.S. Pat. No. 6,068,703) and in further view of Balma et el. (U.S. Pat. No. 5,178,651). This rejection is respectfully traversed.

As noted above, independent claim 19, which claim 20 ultimately depends therefrom, has been amended to overcome the reference cited in the Office Action. For at least these reasons, dependent claim 28 should be allowable by virtue of its ultimate dependency to independent claim 19, which Applicants believe to be allowable in view of the above remarks.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (314) 726-7500.

Respectfully submitted,

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By: Kevin Pumm
Kevin Pumm, Reg. No. 49,046

HARNESS, DICKEY & PIERCE, P.L.C.
7700 Bonhomme, Suite 400
St. Louis, Missouri 63105
(314) 726-7500

KMP/lds